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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,164	01/05/2001	Mark Burton Holbrook	MUR-8558US	6098

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EXAMINER

CONNOLLY, PATRICK J

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 02/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/743,164

Applicant(s)

HOLBROOK ET AL.

Examiner

Patrick J Connolly

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 5 rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

The claims are narrative in form and replete with alternative, indefinite and functional or operational language. The steps that go to make up the method must be clearly and positively specified. The steps must be organized and correlated in such a manner as to present a complete operative method.

Regarding claim 13, the word "means" is preceded by the word(s) "interference" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in-

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(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-6, 12, 16 and 27 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by U.S. Patent No 6,221,679 to Smith, Jr. et al.

As to claim 1, as understood by the examiner, Smith Jr. et al. discloses a method of plasma constituent analysis including:

continuously monitoring a frequency or band of radiation emitted from or absorbed by a species (see col. 14, lines 15-40);

developing a graphical or numerical output corresponding to the level of emission or absorption (see for example, see figures 54 A,B,C); and

electronically comparing that output with a predicted output or trend to provide an indication of the progress of the process (see col. 18)

As to claim 2, Smith, Jr. et al. discloses generating a control signal for controlling the process when a predetermined stage in the process progress is attained (see col. 20, lines 53-61).

As to claim 3 and 31, Smith, Jr. et al. discloses a method relating to plasma-based processes.

As to claim 4, Smith, Jr. et al. discloses a method of processing a semiconductor work piece including determining the process progress and controlling the process in response to the indication provided (see col. 30-31).

As to claim 5, as understood by the examiner, Smith, Jr. et al. discloses a system for plasma constituent analysis and control thereof including (see figure 1 and 6):

means for continuously capturing an optical frequency differentiated sample from the process (figure 6, 178, 182);

a detector for producing an output indicative of the time varying intensity of the radiation (figure 6, 186); and

shape recognition means in the temporal domain for comparing the output against a predicted output or trend to provide an indication of the progress of the process (58, 128).

As to claim 6, Smith, Jr. et al. discloses processing the optical frequency differentiated sample of radiation by a shape recognition means operating in the optical frequency domain prior to its processing in the time domain (see for example figure 22).

As to claim 12, Smith, Jr. et al. discloses a process control system wherein a time evolving spectral output from a reaction is detected by a spectral detection means and then in used in combination with the application of shape recognition techniques to provide a continuous measure of the process progress against a predicted trend (see figures 6 and 22).

As to claim 27, Smith, Jr. et al. discloses examining a multiplicity of spectrum parts simultaneously (see column 20).

As to claim 28, Smith, Jr. et al. discloses detecting the absorption spectrum of light of a particular characteristic wavelength (see col. 23-24).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-11, 13-25, and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,221,679 to Smith, Jr. et al. in further view of U.S. Patent No. 5,225,888 to Selwyn et al.

As to claims 7, 8, 10, 11, 13-15, and 26 Selwyn et al. teaches an interferometer for plasma constituent analysis using interferometric techniques (see Figure 4, 20, 22, 24) including a scanned thin film filter, Fabry Perot interference device.

With further respect to claim 9, Selwyn et al. teaches tilting the Fabry Perot interferometric filter (see col. 6-7).

While Smith, Jr. et al. discloses only a "spectrometer" unit, it would have been obvious to one of ordinary skill in the art at the time of invention to include the Fabry Perot devices of Selwyn et al. as the spectrometric device.

As to claims 9 and 24 the use of a dispersive grating monochromator is well known in spectral analysis and it would have been obvious to one of ordinary skill in the art at the time of invention to include such a device in the system of Smith, Jr. et al.

As to claim 16, digital filtering techniques and devices are well known in the art and it would have been obvious to one of ordinary skill in the art at the time of invention to include such a device in the system of Smith, Jr. et al.

As to claims 17-23, these are well known mapping and analysis techniques and it would be obvious to one of ordinary skill in the art at the time of invention to implement such mapping processes in the shape recognition stage of Smith, Jr. et al.

As to claim 26, Fourier Transform Spectrometers are well known in the art for spectral analysis and it would have been obvious to one of ordinary skill in the art at the time of invention to include such a device as the spectrometer in the system of Smith Jr. et al.

As to claims 29 and 30, it is well known to use a laser as a light source, including swept frequency laser light sources, in spectrometric applications, and it would have been obvious to one of ordinary skill in the art at the time of invention to include such a device in the system of Smith Jr. et al.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J Connolly whose telephone number is 703.305.4397. The examiner can normally be reached on 9 am-5.30 pm ... Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703.308.4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703.746.7722 for regular communications and 703.746.7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0956.

pjc  
January 29, 2003



**Samuel A. Turner**  
**Primary Examiner**